On the Innovation of Editorial Work for Scientific Journals in the Context of Big Data: Postprint

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Abstract

With the advancement of computer and network technologies, big data technology has found widespread application across numerous domains. In the publishing industry, this technology is gaining increasing traction, particularly for scientific journals, where its adoption can significantly facilitate editorial workflows. Through an analysis of the opportunities and challenges confronting medical journals within the big data landscape, this article proposes innovative strategies for editorial operations, thereby aligning the developmental trajectory of medical journals with that of the big data era.

Full Text

Innovating Sci-tech Journal Editing in the Big Data Era: A Preliminary Discussion

Abstract: With the development of computer and network technologies, big data technology has found application across multiple fields. In the publishing industry, particularly for scientific journals, this technology is gradually being widely adopted, offering substantial convenience for editorial work. Based on an analysis of the opportunities and challenges facing medical journals in the big data context, this paper proposes innovative measures for editorial work to align the development direction of medical journals with the trajectory of the big data era.

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The defining characteristic of big data technology is that internet users can share and obtain data in massive volumes. Consequently, in the big data era, everyone can access vast amounts of information, which undoubtedly brings great convenience to the smooth conduct of sci-tech journal editing work. However, it must also be recognized that although China has fully entered the internet age, a standardized system for the application of big data technology has not yet been established. Sci-tech journals need to develop the capacity to deeply analyze big data technology to ensure its rational application.

1. Opportunities for Sci-tech Journal Editing in the Big Data Era

Big data technology can extensively collect data and information, providing substantial convenience for sci-tech journal editing work. These conditions create significant opportunities for editorial work. Through research and analysis of big data technology, this paper identifies the following opportunities for sci-tech journal editing in the big data context.

1.1 Publishing Format

For medical sci-tech journals, comprehensive and in-depth editing work fundamentally determines whether a journal can be published successfully. In contemporary society, public preference for print journals is declining year by year, with readers increasingly inclined toward online journal reading [1]. This publishing format places high demands on publication cycle intervals; medical journals need to increase their publication frequency beyond current levels, which imposes significant requirements on editing work. Through big data technology, editors can collect large volumes of paper content and compare it with submitted manuscripts, substantially improving the quality and level of papers in medical sci-tech journals to meet the publishing demands of the internet era. Against the backdrop of networked publishing for medical sci-tech journals, big data technology can fully satisfy relevant work requirements and ensure both quality and quantity in publication.

1.2 Workflow

In traditional medical sci-tech journal editing, editors first read submitted medical articles to determine whether their quality meets publication requirements. After this process, other staff members handle layout, printing, and other tasks. This work model reduces cohesion between departments in medical journal publishing houses, resulting in long publication cycles that cannot meet current era development requirements. Particularly in paper quality review, editors need to determine whether articles involve academic fraud, usually relying on editorial experience—obviously, this method cannot prevent potential problems [2]. By applying big data technology, rapid and comprehensive analysis of relevant content can be conducted through data collection, reducing editors'workload. Si-

multaneously, constructing information systems can enhance inter-departmental cohesion and improve publication efficiency and quality.

1.3 Paper Review

For medical sci-tech journals, published articles must have extremely high accuracy and authority, and must not contain academic fraud. These two requirements place high demands on paper review work. Big data technology can establish connections with various authoritative paper databases and conduct comprehensive, in-depth comparisons between existing academic papers and submitted articles. When academic fraud is detected, the system provides technical feedback, fundamentally preventing this problem.

Furthermore, in big data applications, editors can use keyword searches to determine the research status of relevant topics. Through analysis of this data, editors are provided with recommendations on whether to accept the paper, comprehensively improving article quality in medical sci-tech journals.

1.4 Editing Philosophy

In big data technology applications, the system can achieve real-time, comprehensive analysis of large amounts of data and materials, ultimately using data to evaluate the quality of submitted articles. For editing work, numerical thresholds for article publication or acceptance can be set during this process. By applying data from analysis results, article quality can be determined and decisions can be made about whether to select the article. When this work system is fully promoted, a digital management philosophy can naturally form in the editing work system [3].

2. Challenges for Sci-tech Journal Editing in the Big Data Era

Although big data technology can bring many opportunities to the editing work of medical sci-tech journals, the current form of technology application also presents severe challenges. In China' s current big data technology application and development, a legal system for managing big data technology applications has not yet been established, causing many to question the security of big data technology. For medical sci-tech journal editing work, staff need to use database content to improve editing work, so databases in journal publishing units need comprehensive and deep protection. In big data technology applications, an important challenge is how to protect various materials during its application. This problem can be transformed into determining the degree of technology application—namely, whether comprehensive coverage of big data technology is necessary.

3. Innovation Measures for Editing Work

In the conduct of medical sci-tech journal editing work, this content needs in-depth research.

3.1 Work Philosophy

For medical sci-tech journals, the primary work philosophy in editing is to ensure the rigor and novelty of published article content. Only when these two conditions are met can articles be published. This work philosophy must be fully guaranteed for all staff in the editing system. In big data technology applications, other aspects of work philosophy need transformation while ensuring these two principles. This paper argues that the main work philosophies requiring transformation include: (1) Data-driven thinking. In reviewing some current medical sci-tech journal articles, the method of preventing academic fraud is checking the repetition rate between the article and already published articles. This evaluation standard has low scientific validity. However, in big data applications, during article quality detection, not only can repetition rates be checked, but horizontal comparisons of each paragraph' s content can be implemented to explore whether the article' s main ideas and research methods are plagiarized. After completing horizontal comparisons, a detection report is generated. Editors need to further analyze and research content with large-scale repetition in the detection report to accurately determine whether academic fraud exists. (2) Efficient work thinking. The core requirement for current and future journal publication when applying big data technology to medical sci-tech journal publishing is increasing publication speed while ensuring quality. Therefore, in editing work, all staff must establish an efficient work philosophy to fundamentally ensure efficient editing operations.

3.2 Workflow

In the publication process of medical sci-tech journals, multiple tasks are carried out simultaneously, such as article quality investigation and analysis, journal layout, etc. In current processes, these contents cannot be fully integrated because article content greatly impacts specific layout work. In big data technology applications, since the efficiency of article quality detection can be improved, optimizing the workflow in this technology' s application can achieve good results. Through understanding and research of big data, this paper argues that workflow optimization in medical journal publication can be accomplished through: (1) Departmental cohesion. In editing work, multiple departments operate simultaneously, while big data technology can collect operational data from multiple departments at the same time. Simultaneously, cloud computing technology can integrate operational data from various departments, and communication systems built into the system can strengthen inter-departmental communication, allowing all work to proceed orderly. (2) Work content integration. In editing work, this paper argues that the future development trend is using big data technology to analyze article content. After editors complete secondary

analysis, articles are submitted to layout and other work systems. Cloud computing technology can automatically develop the most scientific and reasonable layout plan by analyzing article segmentation and word count. This method can substantially improve the integration of various system tasks.

3.3 Talent Cultivation

Through the above analysis, the talent cultivation model for medical sci-tech journal publishing systems under the big data background has become a limiting condition for deep application of big data technology. Therefore, in future editing work optimization, the focus should be on effectively cultivating talent. Talent cultivation needs to proceed from: (1) Editor talent cultivation. Editor talent is the mainstay of editing work, so for medical sci-tech journals, cultivating editor talent becomes a key work focus. In big data technology applications, this technology can enable editors to widely collect materials, research these materials, and comprehensively understand them, enhancing editors' knowledge reserves. In operation, journal publishing units should regularly investigate and analyze these talents' knowledge reserves. Simultaneously, big data technology should be applied to collect and organize these talents' daily work information, and based on this, establish more scientific performance systems to encourage editors to proactively improve their personal quality. (2) Big data technology talent. To ensure big data technology fully plays its proper role in editing work, medical sci-tech journal publishing units need to increase cultivation efforts for these talents. This paper argues that computer talents with big data technology development capabilities can be recruited through open recruitment. After they join, explain the main content of medical sci-tech journal editing work to them, enabling these talents to optimize technology according to work priorities and further improve the efficiency and effectiveness of big data technology applications.

3.4 Article Review

For medical sci-tech journals, the old article review system obviously has low compatibility with big data technology. Therefore, in the big data era, the article review work system needs reconstruction. In specific implementation, an "editor analysis - big data investigation - editor analysis" work system can be established. For the first part, editors analyze article content. When finding that content meets the journal' s publication requirements, the article can proceed to the next step. Additionally, in this process, editor talent can complete article review work, enabling them to quickly acquire relevant skills. Big data investigation involves researching relevant content articles currently existing on the internet, comparing them with submitted article content, and identifying parts with academic fraud. The final editor analysis involves analyzing and researching articles after big data analysis to further eliminate potential problems. For articles with problems, editors can communicate with contributors to achieve comprehensive and in-depth understanding and analysis of article content.

Conclusion

In summary, in medical sci-tech journal editing work, opportunities brought by big data technology include improving workflow and enhancing article review efficiency, while challenges include low scientific validity of current talent cultivation systems and poor technology application standardization. In future optimization and improvement of editing work, big data technology application effects can be enhanced through workflow optimization and strengthened professional talent cultivation, promoting better development of editing work.

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Note: Figure translations are in progress. See original paper for figures.